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An Analysis on the Relationship between an Industrial Park Construction and the Factors that Determine Its Impacts: The Case of Hawassa Industrial Park, Ethiopia

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Abstract

The construction and operation of industrial parks (IPs) has been widely used as a major socio-economic development strategy by most policy and decision-makers. However, the existing empirical researches are mixed with regard to the construction of IPs and the factors that determine their impacts. Besides, there are no sufficient empirical studies conducted, in developing countries like Ethiopia, regarding the relationship between IPC and the predictor variables that determine its impacts. Therefore, the main objective of this study was to analyze the relationship between industrial park construction (IPC) and the immediate socio-economic factors that determine its impacts, taking Hawassa industrial park as a unit of analysis. For this research, mixed method approach was employed and this is mainly an explanatory research. From the total population of 13,680; 389 samples were taken using simple random sampling technique. However, only 337 (86.6) questionnaire were properly filled and returned. To substantiate and triangulate the information collected through questionnaires, interviews were conducted with key informants. Both primary and secondary sources of data were used to gather pertinent information. The data collected were analyzed using correlation and regression analysis. The findings of the study revealed that there is close relationship between an IPC and the immediate factors that determine its impacts. However, the correlation value of each factor is found different. Therefore, understanding the close relationship between the IPC and the immediate factors that determine IPs' impacts, the Hawassa IP administration and the Ethiopian government have to design proper policies so as to harness the benefits gained from the park and minimize the costs.

Keywords: Industrial Park Construction, Industrial Parks, Analysis, Factors that Determine IPs' Impacts, Relationship, Hawassa Industrial Park, Ethiopia

1. Introduction

Various countries have designed different development plans at different times and in different sectors to come out of multiple socio-economic problems. These countries, to change the structure of their economy, have also tried with various economic growth approaches like import substitution and export-led industrialization. For instance, East Asian countries which have selected an export-oriented approach became successful, and much of their economic achievement has been attributed to the use of these zones and parks (Vidová, 2010). In line with this, the construction and operation of industrial parks (IPs) are widely used as a major socio-economic development strategy by most policy and decision-makers (Sime et al., 2021).

UNIDO (2012) argues that one of the major advantages of constructing IPs is that they contribute to a robust economic growth, significant poverty reduction, living standards improvement, and environmental protection. Hence, effective IPs can become development hubs, generating high development regions, and guiding national socio-economic advancement. Elucidating about the use of IPs, Vidová (2010) asserts that IPs are among of the very crucial policy instruments supporting positive economic development and high employment. An argument

by Berhe (2018) concerning the significance of the IPs states that they can serve to overcome hurdles, including market defects and hurdles to get information, finance, and technology that emerging countries encounter in achieving rapid and continual socio-economic development.

According to Baissac (2011), Hausmann et al. (2016), & Warr & Menon (2015), constructing IPs provide both static and dynamic benefits that ultimately results in poverty reduction, overall socio-economic development, and improvement in the life of a society. However, revisiting the policy debate concerning IPs or SEZs, Aggarwal (2006) revealed that no consensus regarding the construction and the impacts of IPs/SEZs as most studies focus on the US and China.

According to some scholars, the construction and development of Industrial Parks (IPs) in a given country or region has its own economic as well as social impacts, which can be positive or negative to its employees, governments, displaced farmers due to the construction of the parks, and environments, among others (Chang, 2002). According to Zeng (2016), there is close relationship between Industrial Parks Construction (IPC) and the factors that determine its short term and long term impacts. However, IPC impacts depends on the perceived positive or negative effects that can be manifested on the predictive or independent variables.

Ethiopia has got on a transformational drive of realizing carbon-neutral economy and a manufacturing hub in Africa among the leading countries in the globe and thereby transform the country into a lower-middle-income economy by 2025 (Gebreeyesus et al., 2017; Llobet & Mamo, 2017; Nicolas, 2017; NPC, 2016). In this regard, despite accelerated progress towards industrialization, poverty reduction, and development in general, the country remains among the poorest and agriculture-dependent in the world that is challenged by the need to create opportunities for its rapidly growing population (Mesfin et al., 2018). In line with this, after the government of the Federal Democratic Republic of Ethiopia came to power in 1991, it has designed different policies and strategies to realize sustainable socio-economic development in the country. Industrial parks development is one of the strategies that are designed to ensure sustainable socio-economic development goals in Ethiopia. The IPs establishment is also to entice FDI and to back medium and small firms (Bezu & Holden, 2014; World Bank, 2015).

2. Statement of the Problem

The single, most crucial, and final objective behind the establishment of IPs/SEZs is to advance the socio-economic status of societies in a given country. However, currently, existing empirical researches are mixed with regard to the construction or development of IPs projects. For instance, a significant number of researchers have identified a positive and statistically significant relationship between the development of IPs and the factors that determine its impacts. As a result, they have recommended for policy makers of both developing and developed nations to construct IPs as the best strategies to realize sustainable socio-economic development in a country (Farole, 2011; FIAS, 2008). Besides, scholars revealed the role of IPs development projects for realizing sustainable socio-economic development goals and reforming the macroeconomic sphere of a nation.

On the other hand, other researchers such as Engman et al. (2007) revealed that the socio-economic impact of industrial parks construction and development is insignificant, and it distorts resource allocation. In addition, Madani (1999) concluded that the impact of industrial parks construction or development depends on specific conditions over a limited time horizon. In general, the arguments and evidences concerning the relationship between industrial construction and the immediate socio-economic factors that determine its impacts are mixed and there is no clarity and agreement, particularly in developing countries (Sime et al., 2021).

When we come to Ethiopia, as the government continues to construct IPs to accelerate industrialization in the country, understanding and documenting the relationship between the IPC and associated social and economic factors that determine their impacts are vital. In this regard, the current knowledge base regarding the construction of the IPs focus more on the macro implications of such establishments, and their relationships and impacts at the micro-level are less well understood. So, filling this knowledge gap will help to make a more inclusive IPs policy and to benefit the rising segments of the population in the country (Abebe et al., 2020).

Besides, from the literature review undertaken, it is possible to understand that there are no sufficient empirical studies conducted, in developing countries like Ethiopia, regarding the relationship between IPC and the predictor variables that determine its impacts such as employment creation impact, skill formation impact, migration impacts, impacts on the female workers, and challenges faced by the selected stakeholders, as IPs construction is a recent phenomenon. Consequently, there is little that is known regarding the question whether IPC contributes positively or negatively. In line with this, Aynalem (2019) argues that since the stories concerning IPs development program in Ethiopia are a current trend, much research is required. This shows that there is a strong need to study the impacts of establishing IPs in Ethiopia. In reply to the above study problems, the objective of this study is, therefore, to analyze the relationship between IPC and its determinant factors, and to examine whether the challenges faced by selected stakeholders are related with the construction of IPs or not, taking the HIP as a unit of analysis.

3. Objectives of the Study

The main objective of this study was to analyze the relationship between IPC and the immediate socio-economic factors that determine its impacts, taking Hawassa industrial park as a case study area.

3.1 Specific Objectives

1. To analyze the relationship between IPC and the immediate economic factors that determine their impacts in the case study area.
2. To identify the relationship between IPC and the immediate social factors that determine their impacts at Hawassa industrial park.
3. To examine if there is relationship between IPC and the challenges faced by selected stakeholders of the park.

3.2 Research Hypothesis

A research hypothesis is formulated based on the existing theories, literature, or observations and it guides the design and direction of the study. Therefore, a research hypothesis has to enable to design a study that can either support or refute it. It should also clearly define the variables and the expected relationship between variables, and it should be grounded in existing knowledge and theories (Anupama, 2018). So, as the study analyze the relationship between IPC and the immediate factors that determine its impacts, the impacts of IPC is dependent variable and employment creation impact (ECI), skill formation impact (SFI), migration impacts (MI), impacts on the female employees (IFE), challenges faced by selected stakeholders of the park (CFS) are independent variables. Thus, the general hypothesis in this study is that there is significant relationship between the identified independent variables and the dependent variable. From these variables, either one or some of them do have positive effect to influence IPC in a particular region or country.

H1: There is significant relationship between IPC and employment creation.

H2: There is significant relationship between IPC and skill upgrading/formation.

H3: There is significant relationship between IPC and female workers.

H4: There is significant relationship between IPC and migration of workers.

H5: There is significant relationship between IPC and the challenges faced by its selected stakeholders.

4. Literature Review

In this era of globalization, most developing countries are witnessing a shift away from an import substitution-based development strategy to one based on export promotion policy. As part of their policy instruments to promote exports, many of these countries are vigorously promoting Industrial Parks (IPs). IPs are seen as a key instrument not only for promoting exports and earning foreign exchange but also for stimulating economic growth through additional investment, employment generation, skill formation, and technology transfers (Aggarwal, 2007).

The construction and development of IPs has been and is becoming an inevitable trend, not only in localities, but also across nations. In this regard, IPs are built and developed to become effective channels to mobilize investment capital by attracting enterprises to operate in IPs. Attracting enterprises operating in IPs create relatively clear benefits for specific localities, regions, and countries. When enterprises operate in IPs, these enterprises attract a large local as well as regional labor force, create jobs and solve social problems at the local as well as national levels. Besides, when IPs are constructed and developed, they create additional industries for people living nearby them. Moreover, enterprises operating in IPs, if they do so effectively, contribute to the state budget, and a government shall use the state budget to invest in health activities, education, infrastructure of localities, areas with IPs in particular and other regions of the country in general (Cu et al., 2020). However, the research results regarding the positive impacts of IPs is mixed (Aggarwal, 2010).

Many scholars recommend IPC and development as one of the best strategies for large-scale industrialization and urbanization. As a means of large-scale expansion of industry, IPs development would increase the competitive power of enterprises through enhancing the productivity and efficiency of enterprises that operate inside IPs. It is also used as means to tackle the major macroeconomic problems like market failure, lack of modern technology and capital, lack of infrastructure, and outstanding policy and framework. However, some other scholars do not agree with this (Memedović, 2012).

The construction and operation of IPs are also widely used as a major socio-economic development strategy for most policy and decision-makers. In line with this, a World Bank report revealed that there are more than three thousand IPs in 135 countries, which generate more than 68 million job opportunities and five hundred billion trade-related value additions (World Bank, 2008). According to Sime et al. (2021), construction of IPs has positive roles for environmental protection, infrastructure development, employment opportunities generation, and technology transfer, among other things. On the other hand, according to Aggarwal (2007), though IPs/SEZs account for an increasing share of international trade flows and employ a growing number of workers world-wide, whether their construction is beneficial remains a subject of controversy. Besides, there is a shortage of empirical research that evaluates the relationship between IPC and the socio-economic factors that determine their impacts.

According to UNIDO (2016), the basic reason for Africa and Least Developed Countries (LDCs) to construct IPs and industrialize is that without industrializing it is unlikely that Africa and LDCs can meet the Sustainable Development Goals (SDGs) by 2030. ECA (2013) and Newman & Page (2017), argues that there are several emerging opportunities for Africa to industrialize. For instance, China's focus on investment and trade with Africa opens significant opportunities for industrializing African countries. In line with this, IPs have been constructed and developed in countries as an effective capital mobilization channel so as to achieve socio-economic goals such as economic development of a country, regions, and localities where they are constructed and put into operation (Anh et al., 2019; Lee, 2020).

After the government of the Federal Democratic Republic of Ethiopia came to power in 1991, it has designed different policies and strategies to realize sustainable economic development in the country. After 1991, industrial parks construction and development is found one of the strategies that are designed to ensure sustainable economic development goals in Ethiopia. In this regard, Tesfaye (2016), in his study on the prospects and challenges of industrial zones in Ethiopia, revealed that industrial park development would increase industrialization through attracting foreign direct investment; enhance the export level, create job opportunities, increase capital investment and create a long-term dynamic effect on the domestic economy. Similarly, Sime et al. (2021) evaluating the economic impacts of IPs development projects in Ethiopia has discovered that IPC has a positive and statistically significant impact on socio-economic development in Ethiopia.

According to Anh et al. (2019), researching the impacts of IPC on socio-economic development not only identifies affected economic, social, and environmental factors but also points out the impact (positive or negative), impact level (big or small) and quantifies that level of impact. On the other hand, other researchers such as Engman et al. (2007) revealed that the socio-economic impact of industrial parks construction and development is insignificant, and it distorts resource allocation. Besides, Madani (1999) concluded that the impact of industrial parks construction or development depends on specific conditions over a limited time horizon.

Currently, existing empirical research revealed the mixed or inconclusive results regarding the relationship between IPC and the factors that determine their impacts. There is also no agreement concerning the socio-economic impacts of IPC or development. A significant number of researchers identified a positive and statistically significant impact of IPs development. These researchers recommend for policy and decision-makers of both developing and developed nations to establish IPs as the best strategies to realize sustainable socio-economic development. These scholars also revealed the role of IPC for realizing sustainable economic development goals and reforming the macroeconomic sphere of a nation. However, some still doesn't agree with this this arguing differently (Warr, 1983; Zeng, 2010; Madani, 1999; Johansson & Nilsson, 1997; Farole, 2011; FIAS, 2008).

According to some scholars, construction of IPs had a positive influence on people's livelihoods through additional employment, non-farm investments, access to policies, household labor, among other things (Le et al., 2020). However, as opposed to their positive contributions, the development of industrial zones still contains unintended impacts. For instance, employment, income and living standards of workers in IPs are still difficult and unsustainable (Anh, 2019).

4.1 Theoretical Framework

Industrial parks have multiple aspects. In other words, IPs are objects of multidimensional facets and they have various benefits and costs. As a result, it is very difficult to find a single theoretical framework that can accommodate all aspects of IPs. Consequently, in this study, the theoretical frameworks such as the neo-classical approach (orthodox view), the new growth approach, the heterodox approach, the agglomeration economic approach, stakeholders' theory, and collaborative governance theory are used as a theoretical basis so as to understand and analyze the relationship between IPC and the immediate socio-economic factors that determine their impacts. In other words, the theoretical framework of this research is mainly based on the previous works of Aggarwal (2010); Aggarwal (2011); Aggarwal (2017); Aynalem (2019); Sime et al. (2021); and Warr & Menon (2016). In general, the purpose of the theoretical analysis framework, in this study, is to explain causal relationships among the analyzed variables and to understand the world better and provide a basis for policy implementation (Rahman & Yusuf, 2019).

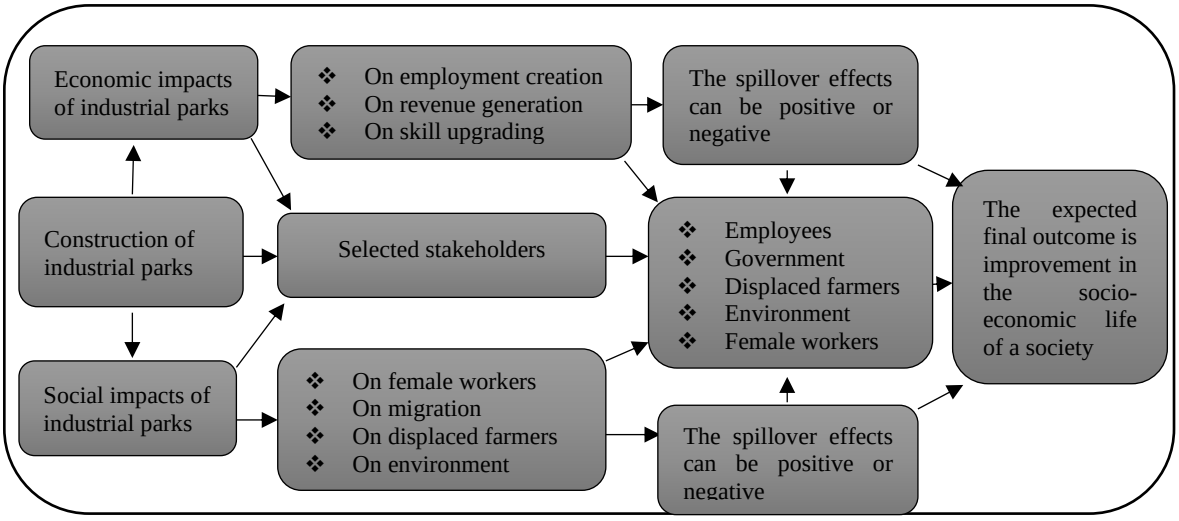

Figure 1.1: Industrial Parks Impact Mechanism

Source: Adapted from Aggarwal (2017); Al-Quradaghi et al. (2020); Ambrozia & Hartwell (2017); Farole (2011); Sime et al. (2021); Zaldívar & Molina (2018); and Zeng (2021)

5. Research Methodology

This study on the relationship between IPC and the immediate factors that determine its impacts is basically based

on the pragmatism philosophy. This is because the study problems stated, and the questions identified in this study offer themselves to a pragmatist approach as they could be best analyzed by using mixed methods. This study is mainly explanatory in nature which is designed to analyze the relationship between dependent and independent variables. The target population of this study included selected stakeholders of Hawassa industrial park.

Regarding the sample size determination, the researcher has used Yamane's (1967) formula to take sample. Accordingly, from the total population of 13,680; 389 samples were taken using simple random sampling technique. This was based on the requirements of efficiency, representativeness, reliability, and flexibility. However, from the total questionnaire distributed to 389 randomly selected respondents, only 337 (86.6) were properly filled and returned. To substantiate and triangulate the information collected through questionnaires, interviews were conducted with purposively selected key informants. Concerning data sources, both primary and secondary sources of data were used to gather pertinent information. Primary data was collected using questionnaire and semi-structured interview. Secondary data were obtained from books, journal articles, and other relevant unpublished materials. The results of this study were summarized and presented using descriptive and inferential statistics as well as developing critical themes from the interview meeting replies. Finally, the researcher combined the quantitative and qualitative data to verify the findings concurrently.

6. Correlation between IPC & the Predictor Variables

According to Saunders et al. (2009), a correlation analysis is used to identify the direction and relationship between the variables. Correlation coefficient enables to quantify the strength of the linear relationship between two variables. Based on this, correlation analysis was made for independent variables and the dependent variable.

Pearson's Correlation Coefficient

Pearson's correlation coefficient is known as a method of measuring the correlation and it is based on the method of covariance. Pearson's correlation coefficient indicates the direction, strength, and significance of the bivariate relationship among all the variables that were measured at an interval or ratio level. In other words, correlation shows how the strength or the magnitude and direction of the relationship of the variables with each other. The linear relationship between variables can be measured by correlation coefficient (r), which is commonly called as Pearson product moment correlation**.** The number representing the Pearson correlation is referred to as a correlation coefficient. Correlations of +1 mean that there is a perfect relationship between two variables. Therefore, the Pearson's correlation coefficient, in this study, is used to better understand whether the relationship is a positive, negative, or no relationship between independent variables and dependent variable. By using this analysis, the strength of relationships between variables is analyzed by the researcher. In line with this, Table 1.1**,** below, shows the measures of correlation between the IPC impact on one hand and its employment creation, skill upgrading or human capital formation effects, migration impacts, and the challenges encountered by some selected stakeholders as a result of the industrial parks, on the other hand, based on the size of correlation interpretation, which was adapted from Weiliang et al. (2011).

Table 1.1: Size of Correlation Interpretation

№	Coefficient Range	Strength of Association
1	+/-.80 to +/- 1.00	Very strong
2	+/-.60 to +/- .79	Strong
3	+/-.40 to +/-.59	Moderate
4	+/-.20 to +/-.39	Weak
5	+/-.00 to +/-.19	Very weak

Source: Weiliang et al., 2011

7. IPC and the Economic Factors that Determine a Parks' Immediate Impacts

7.1.1 Relationship between IPC and Employment Creation

Among the crucial ways of realizing economic transformation and social development, one is through IPs and industrialization. It is a well-established fact that rapid industrial park establishment is critical for economic growth and social advancement (Aggarwal, 2011). This is because IPs generates employment opportunities, provides educational opportunities, encourages advancement and innovation, and better utilizes resources. All these benefits and more make IPC extremely important to a population and an economy, though there is no common understanding and agreement in this regard (Chang, 2002; Zeng, 2016).

Besides, empirical research revealed the real contribution of industrial park development in terms of reducing the level of unemployment in many developing countries. According to Devi (2016) & Sharma (2009), IPs are engines of development and they play a significant role in job creation. To Bräutigam & Xiaoyang (2011), IP/SEZ construction can be a very promising strategy for industrialization and employment generation, particularly in Africa's least developed countries because it allows for improvements in infrastructure, services, and institutions in a limited geographical area. Employment creation is regarded as one of the primary goals of IPC for the host country (Kusago & Tzannatos, 1998).

Llobet & Mamo (2017) argues that in addition to other goals, such as regional and local development, encouragement of technology transfer, creation of linkages, export, FDI, and industrialization, employment creation is one of the major objectives of IPs. Researches also indicate that IPs/SEZs comprise labor-intensive activities (Raheem, 2011). So, enterprises in them constitute a substantial source of new employment. Due to the availability of labor at low wages, emerging countries generally attract investment into simple processing labor-intensive industries. This raises the demand for unskilled labor within a zone (Aggarwal, 2007).

IPs provide investors with factory buildings (sheds), turnkey infrastructure, and comprehensive and well-diversified facilities and services. The advantage of IPs for investors is that they minimize bureaucratic delays, shorten the implementation period of projects and reduce overall establishment costs (IPDC & USAID, 2019). According to Gonsamo (2019), among the positive effects of the creation of IPs, one is employment prospects. However, according to Gebrewolde (2019), the overall evidence on the IPs/SEZs' impact on employment creation is mixed. From the above debates and discussions, it is possible to understand that there is no agreement regarding the positive and negative impacts or relationship between IPC and employment formation. Therefore, in this study, hypothesis is formed concerning the relationship between IPC and employment creation.

H0: There is no significant relationship between IPC and employment creation.

H1: There is significant relationship between IPC and employment creation.

An examination concerning the relationship between IPC and its employment creation impact, as indicated in Table 1.2, below, indicates that the direction of relationship between IPC and employment creation is positive. This is because the value for correlation coefficient is positive. The employment creation has a 0.879 correlation with the IPC. In other words, IPC has a 0.879 correlation with the employment creation. Similarly, with regard to the degree of relationship or strength of relationship between IPC and employment creation, the value of this correlation coefficient (0.879) falls in the coefficient range between ±0.80 to ±1.00. This indicates that the relationship between employment creation and IPC is very strong. Moreover, the relationship between park construction and employment creation is significant. It is because the p-value 0.000 is less than alpha value 0.01. This means the relationship between IPC and employment creation is not only positive but also the degree of relationship is very strong, and it is significant at 1% level of significance.

The possible explanation regarding the above analysis is that the IPC usually creates several job opportunities for unemployed and economically active labor forces. In the Least Developed Countries (LDCs) like Ethiopia where significant portion of labor force is unemployed, construction of industrial park has a paramount effect in creation of employment opportunities. To reinforce this argument, the document analysis conducted in HIP shows that as of Dec 2020, 22 companies in the park have created new jobs for 27,022 employees. Of these numbers, about

3722 were male and 23,300 were female. Similarly, as of Jan 2021, about 26,953 employees (3829 male and 23,124 female) were on the job in the companies of the industrial park.

Table 1.2: Correlation between IPC, Employment Creation, and Skill Formation

No.	Study Variables		1	2	3
1	Industrial Park Construction	Pearson Correlation	1	.879**	.676**
		Sig. (2 tailed)		.000	.000
		N	337	337	337
2	Employment Creation	Pearson Correlation	.879**	1	.534
		Sig. (2-tailed)	.000		.538
		N	337	337	337
3	Skill Upgrading/ Formation	Pearson Correlation	.676**	.534	1
		Sig. (2-tailed)	.000	.538	
		N	337	337	337
	Note: **. Correlation is significant at the 0.01 level (2-tailed).				

Source: Survey Questionnaire, 2024

From the above result of the correlation analysis and arguments in the literature, it is possible to understand and infer that there are very strong and positive relationships between IPC and employment opportunity creation. Besides, the information collected from the senior employees currently working in the Hawassa industrial park (HIP), key informants, and the document analysis, obviously indicated that there is very strong correlation or relationship between the IPC and its employment creation impact. Therefore, null hypothesis (H0) is not accepted but alternative hypothesis (H1) is accepted.

7.1.2 Relationship between IPC and Skill Upgrading/Formation

Governments throughout the world, particularly in emerging countries, are eager to construct IPs programs to take advantage from skills upgrading, technology transfer, support diversification, attract investment, and generate employment (Farole & Akinci, 2011). Technology and skill transfer refers to a movement of ideas, skills, information, technical knowhow and people from the providing organization to the recipient organization (Harrison & Samson, 2002). The degree and efficiency of technology transfer is crucial for host countries' economic growth. The development of social capital in the area is perceived to be the basic instrument for an effective way to economic development. This in turn has an influence on the future local economic activities (Aynalem, 2019).

Foreign-based companies play a great role in skill upgrading and knowledge transfer between countries. Since these parks are established by investors who have different educational, cultural and occupational background, they will have a tremendous role in widening opportunities for the human capital formation and transfer of knowledge. Human capital formation or knowledge transfer makes individual workers capable to do their job effectively within and outside the factories. In this regard, especially for countries like Ethiopia, in which the technology of factory production is undeveloped, it is very good opportunity to learn different countries skills and experiences from the working environment (Salem, 2017).

However, empirical evaluations regarding the role of IPs in skill upgrading and technology transfer are mixed. In other words, despite the current publicity over IPs in developing countries, there is no agreement regarding its impacts. One of the most controversial aspects of IPs is their skill upgrading impacts (Aggarwal, 2007). For instance, substantial evidence discloses that IPs/SEZs played an indispensable catalytic role in technology transfer and industrial skill formation (Lall, 2000) cited in (Zeng, 2012). Augmenting this argument, Farole (2011) indicated that most IPs/SEZs plans have a broad scope of purposes, incorporating skills transfer and upgrading. On the other hand, reviewing the technology and IPs in developing countries Rodríguez-pose & Hardy (2014) concluded that IPs generate little skills advancement in the local labor and didn't able to become unified into their

local economies. Besides, certain assessments have suggested that skill levels in IPs/zones' workforce have not significantly improved over time (Blanco de Armas & Sadni-Jallab, 2002).

From the above debates and discussions, it is possible to understand that there is no consensus with regard to the relationship between IPC and skill formation. Against this background, the following analysis is conducted using correlation. Therefore, in this study, hypothesis is formed regarding the relationship between IPC and skill upgrading/formation.

H0: There is no significant relationship between IPC and skill upgrading/formation.

H1: There is significant relationship between IPC and skill upgrading/formation.

An analysis regarding the relationship between IPC and its skill upgrading/formation impact, as indicated in Table 1.2, above, indicates that the direction of relationship between IPC and employment creation is positive, as the value for the correlation coefficient is positive. This is to mean that the IPC has a 0.676 correlation with the skill formation. In other words, skill formation has a 0.676 correlation with the IPC. Similarly, with regard to the strength of relationship or degree of relationship, the value of this correlation coefficient (0.676) falls under the coefficient range between ±0.60 to ±079. This indicates, according Weiliang et al. (2011) magnitude level of correlation, the relationship between skill formation and IPC is strong. Besides, the relationship between IPC and skill formation is significant. It is because the p-value 0.000 is less than alpha value 0.01. This means the relationship between IPC and employment creation is not only positive but also the degree of relationship is strong, and it is significant at 1% level of significance. This may be due to the fact that IPs involve several innovative entrepreneurs who have several skills and technological know-how. In other words, this may be due to the reason that foreign-based companies that mainly works in the IPs play a great role in skill upgrading and knowledge transfer in the host countries.

From the above result of the correlation analysis, it is possible to understand and conclude that there is strong and positive relationship between IPC and employees' skill upgrading. However, though the correlation between the IPC and skill upgrading is positive, the information collected from the senior employees who have been working in Hawassa industrial park have clearly shown that the HIP didn't bring skill upgrading or human capital formation to them. Therefore, in the case of Hawassa industrial park, the null hypothesis (H0) is accepted, and an alternative hypothesis (H1) is rejected.

8. IPC and the Social Factors that Determine Its Immediate Impacts

8.1.1 Relationship between IPC and Female Workers

Low-income countries industrialization was featured as both "female-dependent as well as export-led" (UNCTAD, 1999). According to the World Bank (2011), empowering females through industrial parks or special economic zones can have substantial impacts on economic development and poverty reduction efforts of developing countries. Improved economic participation by females can contribute to comprehensive economic growth. When females get chances to be employed in industrial parks, they become further able to add value to their own advancement and their households, societies, and communities. In this regard, while examining the significance of special economic zones in females enablement in India, Devi (2016) concluded that IPs/SEZs employ female employees, and employment empowers females. In this respect, industrial parks or economic zones can play a multidimensional role in strengthening female's power and raising their standard of living by generating income.

Several studies on employment in IP/SEZs have revealed that firms located inside zones hire more female workers than firms in the rest of the country (Milberg & Amengual, 2008). For many women in developing countries, parks/zones often offer the first entry into formal-sector employment (World Bank, 2011). To Schaefer & Oya (2019), manufacturing workers are generally young and female. On average, workers are 25 years old, and 75.3% are women. Based on data from the Sri Lankan Board of Investment, EPZ's in the country employed approximately 60,000 women and 30,000 men (Hancock, 2009). In addition, investigating special economic zones' development, emerging encounters, and future directions; Farole & Akinci (2011) argued that without

hesitation, industrialization that is export-oriented had established new openings for females by mobilizing numerous into salaried job opportunities for the first time.

However, the positive impacts discussed above concerning the effects of IPs or SEZs on female workers, however, cannot be generalized mainly because different researchers have found inconsistent results. For example, as to Hancock (2009), while EPZ's are a valued source of jobs creation and poverty mitigation for female, they have also been a basis of debate because of social and labor issues. Besides, Cepheus (2019) revealed that female workers who are working in IPs are mainly with low-wage at the low-skill that is led by young females who are largely illiterate and they are the ones who are moved from rural areas. From the above discussion regarding both positive and negative impacts of industrial parks on females, it is possible to conclude that there is no consensus concerning the relationship between IPC and its impacts on females. Against this background, the following hypothesis is established between IPC and female workers.

H0: There is no significant relationship between IPC and female workers.

H1: There is significant relationship between IPC and female workers.

As indicated in Table 1.3, below, an analysis regarding the relationship between IPC and its impacts on the female workers show that the direction of relationship between IPC and its impacts on the female workers is positive, as the value for the correlation coefficient is positive. This is to mean that the IPC has a 0.821 correlation with its impacts on the female workers. On the other hand, it is possible to say that impacts of industrial park on female workers have 0.821 correlation with the IPC. Besides, concerning the degree of relationship or strength of relationship, the value of this correlation coefficient (0.821) falls under the coefficient range between +/-.80 to +/-1.00. Therefore, based on Weiliang et al. (2011) magnitude level of correlation, the correlation between IPC and its impact on female workers is very strong. Moreover, the relationship between IPC and its impacts on female workers is significant. This is because the p-value 0.000 is less than alpha value 0.01. This is to mean that the relationship between park construction and its impact on female workers is not only positive but also the degree of relationship is very strong, and it is significant at 1% level of significance. In this regard, the analysis of empirical literature uncovers that industrial park remain highly female intensive. To reinforce this claim, data from the HIP shows that 80 to 92% of the apparel manufacturers and 86% of leather product manufacturing sheds in the companies have female workers. In line with this, the enterprises' managers said that they employed higher number of female workers due to their availability on the market, which is higher than males; and female workers best handle the nature of factories production systems, and they are easy to manage.

Table 1.3: Correlation between IPC, Female Workers, Migration, and Challenges

No.	**Study Variables**		**1**	**2**	**3**	**4**
1	Industrial Park Construction	Pearson Correlation	1	.821**	.620**	.530
		Sig. (2-tailed)		.000	.000	000
		N	337	337	337	337
2	Impact on Female Workers	Pearson Correlation	.821**	1	.555**	.414
		Sig. (2-tailed)	.000		.004	.799
		N	337	337	337	337
3	Impact on Migration of Workers	Pearson Correlation	.620**	.555**	1	.607
		Sig. (2-tailed)	.000	.004		.901
		N	337	337	337	337
4	Industrial Park Related Challenges	Pearson Correlation	.530	.414	.607	1
		Sig. (2-tailed)	.000	.799	.901	
		N	337	337	337	337
	Note: **. Correlation is significant at the 0.01 level (2-tailed).					

Source: Survey Questionnaire, 2024

From the above result of the correlation analysis and arguments in the literature, with regard to Table 1.3, it is possible to understand and conclude that there are very strong and positive relationships between IPC and female

workers. Besides, based on the information collected from the senior employees currently working in the Hawassa industrial park (HIP), key informants, and the document analysis, undoubtedly indicated that there is very strong correlation or relationship between the IPC and female workers. Therefore, null hypothesis (H0) is not accepted but alternative hypothesis (H1) is accepted.

8.1.2 Relationship between IPC and Migration of Workers

It is theoretically and empirically established that rural-to-urban relocation is an unavoidable outcome of industrialization. As migration is one of the leading social phenomena and has been in presence for a long time in human history, it has its own benefits and costs. In line with this, while studying the employment patterns and conditions in the construction and manufacturing industries in Ethiopia, Schaefer & Oya (2019) revealed that most workers have recent internal migration experiences, with 72.7% reporting having migrated to look for employment chances to get their current jobs. Investigating the association among industrial zones development, labor market demand, and internal migration, Loi (2005) used comparative methods and economic growth models and found that the industrialization of Vietnam is characterized by creating dynamic economic zones in different parts of the country. The robust growth in cities and industrial areas has created adequate jobs for migrants who are eager to work and take any job that benefits in enhancing their life and resulted in migration.

According to Lall et al. (2006), rural to urban migration responds to diverse economic opportunities across space. Individuals migrate internally or externally for several reasons. Among the migrants' main reasons for migrating, one and the most important is to seek employment in the urban centers and industries for better living (Enu, 2014; Kamaraj et al., 2014). However, research on the impacts of industrialization or industrial parks on the migration of workers has attracted mixed arguments. In this regard, the nature of migration and the causes for it are complex and there is no consensus among intellectuals on its causes. Consequently, there are debates and differences among researchers from different disciplines and researchers even within a discipline, regarding the factors that cause migration (Loi, 2005). From the above discussion regarding both the impacts of industrialization or industrial parks on migration, it is possible to conclude that there is no consensus regarding the relationship between IPC and migration. Therefore, to verify this, the following hypothesis is formed between IPC and migration of workers.

H0: There is no significant relationship between IPC and migration of workers.

H1: There is significant relationship between IPC and migration of workers.

An analysis regarding the relationship between IPC and migration of workers, as indicated in Table 1.3, above, show that the direction of relationship between the two is positive, as the value for the correlation coefficient is positive. In other words, migration of workers has strong correlations with IPC. This means that the IPC has 0.620 correlations with the migration of workers. In addition, concerning the degree of relationship or strength of relationship, the value of this correlation coefficient (0.620) falls under the coefficient range between +/-.60 to +/-.79. Therefore, the correlation between IPC and migration of workers is strong. Moreover, the relationship between IPC and migration of workers is significant. This is because the p-value 0.000 is less than alpha value 0.01. This is to mean that the relationship between park construction and its impact on female workers is not only positive but also the degree of relationship is very strong, and it is significant at 1% level of significance.

Analysis of empirical literature reveals that, currently, IPC is one of the major reasons for their urban to rural migration. In line with this, about 81.1% of the total employees revealed that they came from the rural areas to be employed in Hawassa industrial park. Besides, the mean value of 4.07 and the mode value of 4 indicates that the majority of the workers who are recently working in Hawassa industrial park migrated from the rural areas. Moreover, converging to the above results, almost all the key respondents who have taken part in the interviews disclose that the major reason for the rural-to-urban migration of the workers of the HIP was employment opportunities created by the park. From the above information, it is possible to conclude that majority of the workers who migrated to Hawassa city were mainly because of the employment opportunity created by the HIP.

From the above result of the correlation analysis and discussions in the literature, it is possible to comprehend and infer that there are very strong and positive relationships between IPC and migration of workers. Besides, the information collected from the senior employees currently working in the HIP and key informants certainly

indicated that there is strong correlation or relationship between the IPC and migration of workers. Therefore, null hypothesis (H0) is not accepted but alternative hypothesis (H1) is accepted.

8.1.3 Relationship between IPC and Challenges Faced by the Stakeholders

According to Alden & Gu (2021), African industrial parks or special economic zones have performed weakly, especially when compared to their counterparts in other regions. They have failed to attract sufficient investment, generate significant employment, foster skill upgrading and technology transfer or create linkages with local suppliers. These parks also have been exerting diverse challenges on different stakeholders of the parks such as employees, investors, and farmers, among others (Aynalem, 2019; Gebeyehu, 2017). Therefore, the following hypothesis is formed concerning the relationship between IPC and challenges faced by the stakeholders

H0: There is no significant relationship between IPC and the challenges faced by its stakeholders.

H1: There is significant relationship between IPC and the challenges faced by its stakeholders.

As indicated in Table 1.3, an analysis regarding the relationship between IPC and its related challenges show that the direction of relationship between IPC and its related challenges is positive, as the value for the correlation coefficient is positive. This is to mean that the IPC has a 0.530 correlation with its related challenges. It is also possible to say that challenges related with the industrial park have 0.530 correlation with the IPC. In addition, concerning the degree of relationship or strength of relationship, the value of this correlation coefficient (0.530) falls under the coefficient range between +/-.40 to +/-.59. Therefore, based on Weiliang et al. (2011) magnitude level of correlation, the correlation between IPC and industrial park related challenges is moderate. Moreover, the relationship between IPC and its related challenges is significant. This is because the p-value 0.000 is less than alpha value 0.01. This is to mean that the relationship between park construction and its related challenges is not only positive but also the degree of relationship is moderate and significant at 1% level of significance.

Against the above discussions and results, the analysis of empirical literature indicates that industrial park establishment has its own challenges that can be faced by the selected stakeholders. Similarly, the information collected from the HIP workers indicated that the employees who have been working in the park have encountered diverse challenges such as very low wage that is not enough to access decent and secure living; lack of collective voice mechanism or trade unions; treatment with less dignity and insult by the foreign production managers and management of the industrial park; lack of housing, health, and education, water and sanitation facilities, lack of security or policing around the industrial park, and exposure to robbery because of strangeness to the Hawassa City as most pressing challenges they have faced since they joined the park. Moreover, the information collected from the enterprise managers in HIP has shown that high rate of skilled and unskilled labor turnover, time taking shipping process, high shipping and freight transport costs, and inefficient port operations, and shortage and quality issues in domestic raw materials provision and expensive foreign raw material are the predominant challenges they have been encountering.

From the above results of the correlation analysis and discussions in the literature, it is possible to understand and deduce that there are positive and significant relationships between IPC and the challenges that comes with the establishment of the parks and the stakeholders have faced. Besides, based on the information collected from the senior employees currently working in the HIP, displaced farmers, firms operating in the park and detailed key informants' interview clearly indicated that there is positive correlation or relationship between the IPC and the challenges that have happened to the stakeholders. Therefore, null hypothesis (H0) is not accepted but alternative hypothesis (H1) is accepted.

9. Regression Analysis on the Relationship between IPC and Its Predictor Variables

In order to validate or crosscheck the results of correlation analysis on the research hypotheses, a regression analyses was undertaken. The full set of variables that were included in the regression analysis were employment creation impact (ECI), skill formation impact (SFI), impact on migration (MI), impact on female employees (IFE), and challenges faced by the stakeholders of HIP (CFS).

Accordingly, based on the Model Summary provided in Table 1.4, below, Multiple Correlation Coefficient (R) is 0.830 which is greater than 0.5. The R square tells the proportion of the variance in the dependent (criterion) variable (park construction) which is accounted for by the above predictor variables. The R value indicates that there is strong and positive correlation between the independent and the dependent variables.

Table 1.4: Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.830[a]	.688	.684	.2781	1.409
a. Predictors: (Constant), ECI, SFI, MI, IFE, CFS					
b. Dependent Variable: Industrial Park Construction (IPC)					

Besides, the Coefficient of Determination or R-Square value is 0.688, which means that the independent variables in the model explain 68.8% of the variation in the dependent variable (park construction). It also shows that our predictors are good at predicting industrial park construction and its socio-economic impacts. Moreover, it indicates that there is close and positive relationship between dependent and independent variables. Furthermore, the value of adjusted R Square is 0.684, which is very close to the R-squared value. This suggests that the model has a good fit and the inclusion of the independent variables is justified. In general, the model summary indicates that the independent variables have a strong and significant relationship with the dependent variable, and the model has a good fit with the data. This also supports and validates the research hypotheses or correlation analysis result and discussion made under 5.4 and 5.5.

ANOVA Test Result

The provided Analysis of Variance (ANOVA) table, below, offers that a significance value (p-value) is 0.000 for many of the variables, which is less than the commonly used significance level of 0.05 (or 5%). This indicates that the overall model is statistically significant, meaning that at least one of the independent variables significantly predicts the dependent variable. The ANOVA table shows that the overall model is statistically significant, and the independent variables collectively have a significant impact on the dependent variable. The high F-statistic and the low p-value (< 0.000) provide strong evidence that the model is a good fit for the data.

Table 1.5: The ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.560	5	11.312	146.228	.000[b]
	Residual	25.606	331	.077		
	Total	82.166	336			
a. Dependent Variable: IPC						
b. Predictors: (Constant), ECI, SFI, MI, IFE, CFS						

Regression Analysis Result

Standardized regression coefficients, or "betas" allow comparison of the relative importance of each variable in explaining industrial park construction and its socio-economic impacts. The b coefficient measures the amount of increase or decrease in the dependent variable for a one-unit difference in the independent variable, controlling for the other independent variable(s) in the equation. Table 1.6, below, depicts the value of b coefficient, the beta value, and the statistical significance of each predictor variable.

As it can be seen from the Table 1.6**,** below, all the independent variables have p-values less than 0.05, indicating that they are statistically significant predictors of dependent variable (park construction) and there is close relationships between dependent and independent variables. In other words, independent variables such as

employment creation ($p < 0.05$), skill formation ($p < 0.05$), impact on Females ($p < 0.05$), impact on migration ($p < 0.05$), and challenges faced due to the construction of HIP ($p < 0.05$) are all statistically significant predictors of park construction. For example, based on the unstandardized coefficients and the significance values, we can see that employment creation has the strongest positive influence on park construction, with a coefficient of 0.395. This means that a one-unit increase in employment creation is associated with a 0.395-unit increase in park construction, holding all other variables constant.

Table 1.6: The Coefficients Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.043	.238		-.181	.856
	Employment creation	.395	.031	.439	12.733	.000
	Skill formation	.384	.054	.259	7.169	.000
	Impact on Female	.293	.034	.309	8.592	.000
	Impact on migration	.073	.030	.075	2.392	.017
	Challenge	.136	.045	.096	3.022	.003
a. Dependent Variable: Industrial Park Construction						

Similarly, as it can be seen from the Table 1.6, above, skill formation and impact on Females have substantial positive impacts on park construction, with coefficients of 0.384 and 0.293, respectively. The industrial park's impact on migration and the challenges faced due to the construction of HIP have smaller, but still statistically significant positive effects on park construction. Therefore, it is possible to infer based on the above Coefficients Table that all the independent variables are significant predictors of park construction. From the above discussion, it is possible to understand that there is very close relationship between an IPC and the factors that determine its impacts. This, on the other hand, has proved and validated the research hypotheses that was tested through correlation analysis, as discussed in section 7 and 8, above.

10. Conclusion and Recommendation

The objectives of this research was to examine the relationship between IPC and the factors that determine its impacts. In this regard, the data demonstration, analysis, and explanations made are utilized to fully respond to the research question under consideration. The impacts of an industrial park depend on the perceived positive or negative effects that can be manifested on the independent variables. In this regard, the study variables or predictors such as "employment creation, skill upgrading or formation, impact on female workers, impact on migration of workers, and industrial park related challenges", had a correlation value of $r = .879^{**}$, $.676^{**}$, $.821^{**}$, $.620^{**}$, .530 at a p-value of .000, based on $p<0.01$, respectively. This is by using the Pearson product-moment (bivariate) correlation. Therefore, based on the result of the correlation between the variables above, the five predictors had significantly correlated with the dependent variable which is "industrial park construction". Besides, as shown in the Table 1.2 and 1.3, above, based on Weiliang et al. (2011) magnitude level of correlation and hypothesis testing, employment opportunity creation impact and the impacts of IPs on female workers have very strong and significant correlation index with the IPC with the r value of $.879^{**}$ and $.821^{**}$, respectively. Similarly, skill upgrading or human capital formation and migration of workers have strong and significant relationship with the IPC, with the r value of $.676^{**}$ and $.620^{**}$. However, the challenges faced by the stakeholders in relation to CIP has moderate or lowest correlation index among all the variables with the r value of .530.

In order to test the research hypotheses regarding an IPC and the factors that determine its impacts, a correlation analysis was made. Besides, to validate the correlation analysis, a regression analyses was undertaken. Accordingly, all the independent variables are found statistically significant predictors of IPC. Therefore, it is possible to infer that there is very close relationship between an IPC and the factors that determine its impacts. So, it is validated that the research hypotheses result tested through correlation analysis is closely related with the result tested through regression analysis.

Therefore, understanding the close relationship between the IPC and the immediate factors that determine IPs' impacts, the Hawassa IP administration and the Ethiopian government have to design proper policies so as to harness the benefits and minimize the costs.

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